

O.Z. 6207-WO

22

ART 34 AMDT

New claims:

1. A precipitated silica characterized by
 - 5 BET surface areas 150-400 m²/g
 - CTAB surface areas 145-350 m²/g
 - Al₂O₃ content 0.2-5% by weight
 - modified Sears number V₂ 5-35 ml/(5 g).
- 10 2. A precipitated silica of claim 1,
characterized in that
it has a DBP absorption of from 180 to
320 g/100 g.
- 15 3. A precipitated silica of claim 1 or 2,
characterized in that
it has a BET/CTAB surface ratio of from 1.0 to
1.6.
- 20 4. A precipitated silica of claim 3
characterized in that
it has a BET/CTAB surface ratio of from 1.2 to
1.6.
- 25 5. A precipitated silica of claim 1 or 2,
characterized in that
it has a BET/CTAB surface ratio of from 1.33 to
2.43.
- 30 6. A precipitated silica of any one of claims 1 to 5,
characterized in that
it has a wk coefficient ≤ 3.4.
- 35 7. A precipitated silica of any of claims 1 to 6,
characterized in that
its surface has been modified with organosilanes
of the formulae

ANT 34 ANDT

$[R^1_n(RO)_rSi(Alk)_m(Ar)_p]_q[B]$ (I),
 $R^1_n(RO)_{3-n}Si(Alkyl)$ (II),
 or
 $R^1_n(RO)_{3-n}Si(Alkenyl)$ (III),

5

in which

B is -SCN, -SH, -SC(O)CH₃, -SC(O)(CH₂)₆CH₃, -Cl,
 -NH₂, -OC(O)CHCH₂, -OC(O)C(CH₃)CH₂ (if q = 1), or
 -S_x- (if q = 2),

10 R and R¹ are each an aliphatic, olefinic, aromatic or arylaromatic radical having 2 to 30 carbon atoms, and possibly being substituted optionally with the following groups: hydroxyl, amino, alkoxide, cyanide, thiocyanide, halogen, sulfonic acid, sulfonic ester, thiol, benzoic acid, benzoic ester, carboxylic acid, carboxylic ester, acrylate, methacrylate or organosilane radical, it being possible for R and R¹ to have an identical or different definition or substitution,

15 n is 0, 1 or 2,

Alk is a divalent unbranched or branched hydrocarbon radical having 1 to 6 carbon atoms, m is 0 or 1,

25 Ar is an aryl radical having 6 to 12 carbon atoms, preferably 6 carbon atoms, which can be substituted by the following groups: hydroxyl, amino, alkoxide, cyanide, thiocyanide, halogen, sulfonic acid, sulfonic ester, thiol, benzoic acid, benzoic ester, carboxylic acid, carboxylic ester or organosilane radical,

30 p is 0 or 1, with the proviso that p and n are not simultaneously 0,

x is a number from 2 to 8,

35 r is 1, 2 or 3, with the proviso that r + n + m + p = 4,

Alkyl is a monovalent unbranched or branched unsaturated hydrocarbon radical having 1 to 20

ATT 34 AMDT

carbon atoms, preferably 2 to 8 carbon atoms, Alkenyl is a monovalent unbranched or branched unsaturated hydrocarbon radical having 2 to 20 carbon atoms, preferably 2 to 8 carbon atoms.

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8. A process for preparing a precipitated silica having

BET surface areas in the range 150-400 m²/g

CTAB surface areas in the range 145-350 m²/g

10 Al₂O₃ content in the range 0.2-5% by weight where

a) an aqueous waterglass solution is introduced initially,

15 b) waterglass and sulfuric acid are metered simultaneously into this initial charge at from 55 to 95°C for from 30 to 100 minutes with stirring,

c) the mixture is acidified with sulfuric acid to a pH of about 5, and

20 d) a product is filtered and dried, with the proviso that aluminum compounds are added in steps b) and/or c).

9. A process of claim 8,

25 characterized in that the components supplied in steps b) and c) each have an identical or different concentration.

10. A process of claim 8 or 9,

30 characterized in that the components supplied in steps b) and c) each have an identical feed rate.

11. A process of claim 8 or 9,

35 characterized in that the components supplied in steps b) and c) each have a different feed rate.

12. A process of claim 11,
characterized in that
with an identical concentration of the components
in steps b) and c) the feed rate in step c) is
5 from 110 to 200% of the feed rate in step b).
13. A process of claim 11,
characterized in that
with an identical concentration of the components
10 in steps b) and c) the feed rate in step c) is
from 50 to 100% of the feed rate in step b).
14. A process of claim 8 to 13,
characterized in that
15 the drying is carried out by spin-flash, nozzle
tower or spray drying and/or granulation
with/without a roll compactor.
15. A process of any one of claims 8 to 14,
20 characterized in that
the precipitated silica is modified with
organosilanes of the formula I to III in mixtures
of from 0.5 to 50 parts, based on 100 parts of
25 precipitated silica, in particular from 1 to 15
parts, based on 100 parts of precipitated silica,
the reaction between precipitated silica and
organosilane being carried out during the
preparation of the mixture (in situ) or externally
30 by spray application and subsequent thermal
conditioning of the mixture or by mixing of the
silane and the silica suspension with subsequent
drying and thermal conditioning.
16. A vulcanizable rubber mixture or vulcanizate
35 comprising the precipitated silica of any one of
claims 1 to 6 or the precipitated silica prepared
by any one of claims 8 to 15.

- ATT 2A AMDT*
17. A tire comprising a precipitated silica of any one of claims 1 to 6 or a precipitated silica prepared by any one of claims 8 to 15.
 - 5 18. The use of silica of any one of claims 1 to 6 in battery separators, antiblocking agents, flattening agents in paints, paper coatings of defoamers, in gaskets, keypads, conveyor belts or window seals.